

CLAIMS

We claim:

1. A thermal management system for an electronic device being cooled, said thermal management system comprising:

a. top surface of said electronic device orientated to receive a dispensed fluid from an at least one sprayer;

a plurality of etched microchannels within said top surface and open to said sprayer; and

wherein said dispensed fluid creates a thin evaporative cooling film on said top surface including said plurality of etched microchannels.

2. The thermal management system of claim 1, wherein said dispensed fluid is substantially directed down the length of said plurality of etched microchannels.

3. The thermal management system of claim 1, wherein said sprayer is an atomizer.

4. The thermal management system of claim 1, wherein said plurality of etched microchannels are positioned above a hotspot of said electronic device.

5. The thermal management system of claim 1, wherein said plurality of etched microchannels each have a width generally less than 200 microns.

6. A thermal management system for an electronic device being liquid spray cooled, said thermal management system comprising:

a plate having a top surface and a bottom surface, said bottom surface bonded to said electronic device, said top surface orientated to receive a dispensed fluid from an at least one sprayer;

a plurality of etched microchannels within said top surface and open to said sprayer; and

wherein said dispensed fluid creates a thin evaporative cooling film on said top surface including said plurality of etched microchannels.

7. The thermal management system of claim 6, wherein said dispensed fluid is substantially directed down the length of said plurality of etched microchannels.

8. The thermal management system of claim 6, wherein said sprayer is an atomizer.

9. The thermal management system of claim 6, wherein said plurality of etched microchannels are positioned above a hotspot of said electronic device.

10. The thermal management system of claim 6, wherein said plurality of etched microchannels each have a width generally less than 200 microns.